

Meeting Minutes 12/4/18

Present

- Jake
- Emily
- Ray
- Dr. Rezaie

Products to Purchase:

- Overview
 - Switch the pipes to have the hotter portion going to the bottom
- Thermal
 - Gas Tank
 - 500 G 10 ft 3 ft in diameter
 - 250 G 7 ft by 30 in diameter
 - Ra- can probably find a much cheaper 500-gallon tank
 - Ra- Maybe slice the tank in half and put it on the side
 - If you don't need to compress the gas, just need a container that won't leak too much gas. 2m x 2m block ->Think wood framing with half inch concrete and tile on top. Use metal steel studs to build and avoid heat contact with wood. Studs six inch on center to leave a good amount of concrete free and calk it shut. Easy to take apart
 - Ra-There won't be a huge concern with gas
 - Experiment with porosity, channels, etc with
 - **Safety concern-avoid welding as much as possible. Ray getting insurance to work on property**
 - For the big mine there will be a lot of holes in the pit inside the pit so the rocks will essentially be impermeable. A fine grained or wet material would be the best to stop gas from escaping. One way is to have the entire storage system under the water table and line it with clay or fine grained material to keep the gas on the inside
 - Sifting the rock might be a good application for the project.
- Insulation
 - Sheet insulation possibly for the inside of the container to have some sort of insulation on the inside
- Heating
 - Ray might have to do the electrical work for the heater
- Piping
 - Ra-Piping inside the gravel might be clay pipe because it's not a conductor of heat to not conduct heat down the metal pipe (typically 4 inch diameter is the smallest) **Need to look up clay pipe
- Sensors-
 - Ray has 24 sensor in his proposal
 - Ray has four pressure sensors at home
 - Ra-Use K type thermocouples
- Airblowers

- Troubles finding an airblower that gets up to the 600F without having commercial ones

Equipment at Rays:

- Rock will be the most difficult to move
- Can rent equipment if needed
- Almost any hand tool

Mine Tour- Arrange something to see big mine

Maybe visit mine first week of next semester to

To Do-Order Sensors, heater, and air blowers

Need Rays Shipping Address:

What specs do you want gravel wise?

- Dry gravel
- Driveway gravel similar to large scale mines .5" to 11"

What are the objectives of the experiment?

How realistic to the mines do we need to be?

Goal: Try to build system that can move hot water later (maybe even vegetable oil)